Fall 1970

Iowa Agriculturist 71.2

Gene Johnston
Iowa State University

IOWA Agriculturist

FALL 1970 Serving The Nation's Largest Agriculture College

LOUIS M. THOMPSON
ASSOCIATE DEAN OF AGRICULTURE

A Challenge to Ag Students for the Seventies

As we enter the decade of the '70's we leave behind us a decade of "soaring '60's" in Agriculture. There has been no other decade in the history of Agriculture when there were greater increases in yields per acre of our major crops than in the '60's. For example, the yield of corn per acre in the U.S. increased from 53.1 bushels in 1959 to 83.9 bushels in 1969. The yields of soybeans were 23.5 and 27.5 bushels per acre respectively in 1959 and 1969. To achieve these remarkable increases in productivity required (1) tremendous expansion of technological inputs such as fertilizers and pesticides, (2) greater volume in Agricultural businesses and industries, (3) and employment of more and more Agricultural graduates. During the '60's, Agricultural enrollment increased 50% in the Land-Grant Colleges of this country and by 65% at Iowa State University. The expansion of Agricultural businesses and industries absorbed our graduates as rapidly as we could produce them.

As we look ahead there are several situations that should command the attention of future leaders in Agriculture.

1. The rapid increase in productivity in the '60's was the result of education consuming technology faster than it was being produced by research. There was a large backlog of knowledge produced by research by 1960. Farmers had been applying new technology slowly up to 1960 but they began knocking on doors of research men by 1970, wanting to know the latest ideas on how to improve productivity. They have now reached yield levels where it is difficult to raise them further, even with good weather. New ideas and breakthroughs are needed from a new generation of Agriculturists.

2. World population growth has been accelerating until growth is now at an annual rate of 2%. At 2% rate of growth, world population will double in 33 years. We are now at a level of 3.5 billion people. During the past ten years there has been enough acceleration in food production to keep pace with population growth. But, again we have been consuming technology faster than it was generated by research, and Agriculture will be strained to increase production in the '70's as rapidly as population will grow.

3. For several decades our society has placed a high value on growth in numbers of consumers. Growth in consumer demand has been associated with economic growth. We have reached levels of consumer demand that are causing a reduction in the quality of our environment. In order to increase productivity in Agriculture we have had to resort to practices that have caused pollution, particularly of our valuable water resources. As we reduce pollution we may also reduce productivity at a critical time when we have acceleration of world population growth.

Therefore, as we look ahead to the '70's there has never been a time when there was greater need for talented Agriculturists to help increase productivity, to accomplish this goal without polluting our water supply or decreasing the quality of our environment.

Louis M. Thompson

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IOWA Agriculturist

Our Cover

Previously, covers of the Iowa Agriculturist have been selected on the basis of beauty. This cover is not beautiful, and neither is pollution.

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PHOTO AND ART CREDITS

Carl Whitney: 14, 15, 16, 24, 25; Gene Johnston: 17; Richard Leichtman: Cover; Iowa State Daily: 11; Dennis Niles: 20.

Rambling Reporter

Ever wonder where pollution starts? Or what the entire environmental crisis centers around? Well, you don't have to look far to find the answer—it starts at home, with you.

With me? What do you mean?

Exactly what I said. The whole problem starts right within each and every individual at this university, in this city or in the entire world for that matter. Why? Because we are the ones driving the cars, we are the ones demanding bigger and better industrial plants, we are the ones who want to use more and more deadly pesticides to increase our agricultural production, and we are the ones who get married and have four, five and six children when the over-population problem is already leaving starving children all over the globe, including this country.

And it is even a sadder situation if we can't face up to the fact that our own greed (and I don't mean the greed of any nation or the greed of a group of people, I mean the greed within each and every individual alive) is causing our entire existence to be jeopardized.

With these thoughts in mind, the *Iowa Agriculturist* presents in this issue stories and pictures that we feel tackle the problem right at its heart.

Beginning on page 11, author Chris Franson has taken a look at a couple of problems of particular interest to us now, overpopulation and agricultural production. Some say increased agricultural production is the key to feeding a hungry earth, but increasing the food we can produce also serves to further populate an earth that is already over-flowing with people in the estimate of a good many experts. Franson comes up with some conclusions that many people may have overlooked in the past.

Local pollution is also a subject of great discussion right now. Just take a look along Lincoln Way during one of the rush hours and you will see why that polluter of polluters, the automobile, has received the attention it has from ecologists. The *Agriculturist* takes a pictorial look at the campus car situation and an alternative to the car (namely, the bicycle) begining on page 14.

Finally, several members of the Agriculturist staff pooled information and sources to come up with the editorial on pages 17 and 18 that brings out some revealing (even shocking) figures and facts from around the country and world.

Statistics supplied by Associate Dean Thompson show Iowa State is still the top school in the nation for agricultural enrollment. In the fall of last year, the Iowa State College of Agriculture had 2,965 undergraduate students enrolled. The closest anyone could come to that figure was Ohio State University, where 2,294 agricultural students were enrolled. Third place goes to Purdue University with an enrollment of 2,244 students and Cornell comes after that with 2,214.

The Iowa State College of Agriculture has grown from 1,769 students in 1963 to the figure reported last year, an increase in enrollment of 68% over the six-year period. This increase is by far greater than the remainder of the university.

"This rapid growth reflects an optimism on the part of young people in the future of agriculture," said Dean Thompson.

A summary of a survey of 1964 agriculture college graduates, also provided by Dean Thompson, showed those graduates who have been working for five years are now earning an average of $10,638 yearly. When those graduates first left ISU, their average salary was only $5,999 yearly. The average starting salary of graduates from the agriculture college now is in the range of $7,200, which is quite a healthy increase in the past few years.

Salaries for those graduating with a B.S. degree in 1968 rose by 4.5% over the previous year. The corresponding increase for M.S. degree graduates was 3.9%, and Ph.D. graduates' salaries jumped by 5.9% between 1967 and 1968. All of those figures were smaller increases than the previous year, however.

On a national basis, a survey showed that 20.8% of the 1968 agriculture graduates entered either professional or graduate school.

Some people have claimed that college is a haven for those wanting to escape military service. Undoubtedy, there are some students who do go to college just to beat the draft, at least for the time being.

It would seem to me "just for the time being" is exactly what college turns out to be, and figures bear that out. Since 1964, 55% of the graduates of the college of agriculture at ISU have served in the military at one time or another. I'm not sure what the total per cent of all males who eventually serve in the military is, but I think it is well below 55%. So if you want to beat the draft (and who doesn't) you might be wise to try some method besides going to college. For instance, the number of Canadians drafted by the United States military last year was well under 55%. ●

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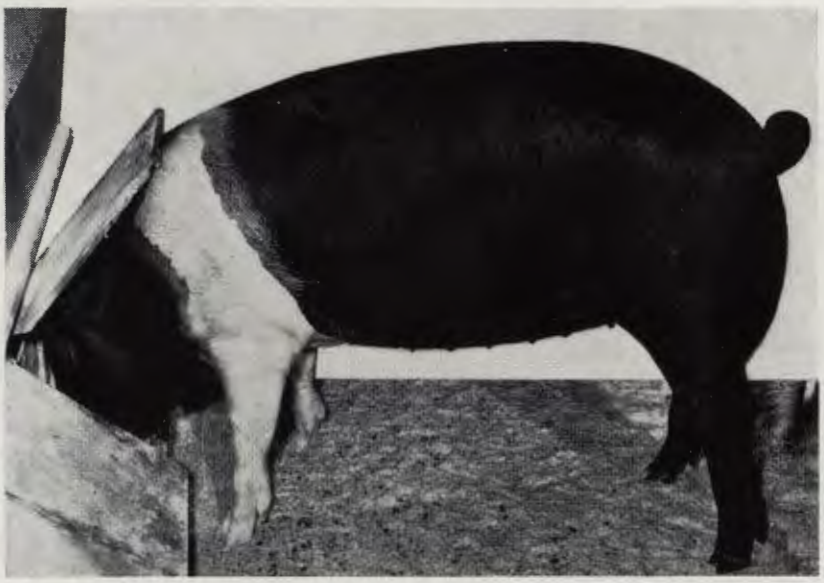

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Ron Faas

Peace Corps . . . Brazilian Style

Dr. Giovani, head of the Brazil Agricultural Research Station at Vitaria de Santo Antao, Brazil, demonstrates how to plant an orange tree seedling to a group of Peace Corps volunteers and rural leaders in Brazil. This type of training is typical of the work volunteers do in Brazil.

Many Iowa State graduates find themselves doing a lot of traveling once they get that first job. Into Chicago for a business meeting, out to San Francisco for a meeting with a prospective client, etc.

However, probably few Iowa State graduates have found themselves traveling much farther, or meeting greater challenges, than Ron Faas, a native of Poweshiek County and a 1965 graduate of Iowa State with a masters degree in Agricultural Economics.

For the past three years, Faas and his wife have been in Recife, Brazil. Ron has been there as an employee of the National 4-H Club Foundation and he has served as a rural development consultant for Peace Corps volunteers in the northeast section of Brazil.

"My job was actually with the 4-H Foundation," Faas said, "and not with the Peace Corps. The Foundation contract terminated in April of this year and I came back to the United States at that time."

His stay in the states didn't last long, though, as he left again in August to go back to Recife. Now he is directly employed by the Peace Corps and his job will be to coordinate the program and training of Peace Corps volunteers in Brazil.

"I'll actually be working out of

the same regional office as I was before," Faas said while in Ames one day last spring. "The difference is that my former position was basically support of Peace Corps volunteers and my new job will be basically support of staff personnel."

Faas actually got his first degree from Iowa State in Agriculture Education in 1957. Between then and the time he came back to Iowa State for his masters degree, he worked as a county extension associate in Jackson County, with two years off for military service from 1961–63 and a seven month International Foreign Youth Exchange visit to Brazil in 1963. He liked that country well enough that he took the job with the 4-H Foundation in 1967, after serving for two years as an extension leader for area development in the Creston area.

Some of the things Ron has found himself working with in Brazil include agricultural cooperative work, adult extension work, rural youth club work and secondary vocational agriculture schools. He said the youth programs are located basically in central and western Brazil while the cooperative programs are in the northeast and the Amazon area.

In the northeast area of Brazil, Faas explained, 65% of the population lives in rural areas (farms or small towns). The Agrarian Reform Institute says 80% of the farms are too small to sustain a farm family or operation large enough for four workers.

"We have two broad objectives in rural development projects in our area of Brazil," Faas explained. "First, we want to help the small farmer improve his income by increased productivity and effective marketing. Second, we want to help the small farmer become a more effective participant in the social and political life of his society."

Peace Corps volunteers in this area assist in cooperative management, agricultural production and rural leadership development. They may pick out an area to concentrate in if they wish.

Volunteers and cooperative leaders are transplanting tomatoes in a practical work session at a Brazil research station after being taught the proper technique by horticulturists.

In the adult extension programs, male volunteers provide assistance in crop production and identify potential leaders and help develop these leaders. Female volunteers provide technical assistance with health and nutrition problems, and they also help in group organizational work. In some instances, volunteers may get out in rural neighborhoods and live there and provide technical assistance till extension workers can later follow up with other groups the volunteers have organized.

Ron's wife, Bev (whom he met and married while attending graduate school), works in the Recife area on a part time consulting basis in design and coordination of home economic aspects of in-service training programs for volunteers. Bev has a Home Economics Education degree from Iowa State.

Right now, there are 110 Peace Corps volunteers in the six northeast Brazilian states. During the past year, Ron has provided back-stopping for around 280 volunteers.

"I find the volunteers an exciting group to work with," he said. "They're quite a committed group to the job they are doing. Brazilians have responded well to the volunteers and the local people are great in showing appreciation.

"The people of Brazil may form their views of Americans by the volunteers because the volunteers are the only Americans they know. So the impression the volunteer leaves may be quite important in the attitude the Brazilians have of Americans in general.

"Many of the rural Brazilians don't know much about America and its politics. Some of the informed Brazilian people are not as receptive as others to Peace Corps work, but a minority of the people feel this way.

"I personally really enjoy working with Brazilians, particularly with those with whom we have placed volunteers."

The Peace Corps is currently trying to get as many Brazilians involved with Peace Corps programs as possible. The man who is doing the work that Ron formerly did is Aldo Franklin Dos Dantos, a native Brazilian who got his masters degree in agronomy from ISU in 1954. He is now one of only four Brazilians on the Peace Corps staff in all of Brazil. ●

Classroom & Campus

The Dairy Science Club held a 4-H and FFA Judging Contest at the Iowa State Dairy Farm on September 19. Approximately 150 persons from throughout the state participated in this contest. This contest is seen by many as a practice session for the state contest at Waterloo.

The annual Milk Maid Contest was held October 2 and 3. Over forty girls pulled hard trying to win this contest.

The club plans to help with the State Holstein Sale on November 21.

Agronomy Club came back from the National SAS-ASA meetings in Tucson, Arizona with two national awards. Les Lanyon won first prize in the essay contest and Robert Wych was sixth place speech contestant.

At the invitation of the Iowa Chapter of ASA the Agronomy Club toured their research plots and other facilities.

At the first Agronomy Club meeting fall quarter Dr. W. F. Wedin spoke on the topic "What can Iowa do with 10 million acres of forage."

A new national student group was formed last summer when representatives from eight universities and colleges met on the Cornell University campus in Ithaca, New York, to lay the groundwork for ACT, Ag. Communicators of Tomorrow. The first ACT officers to be elected were, from left to right: Linda Vance, Ohio State, co-editor; Don Schlichte, Iowa State, vice-president; Frank Holdmeyer, Missouri, president; Charlotte Hutson, Ohio State, co-editor; and Marilyn Bidner, Illinois, secretary-treasurer.

The American Society of Animal Science's 1970 "Morrison Award" has been presented to Dr. Norman L. Jacobson, who also holds the honorary title of Charles F. Curtiss Distinguished Professor of Agriculture at Iowa State University.

Dr. Norman Jacobson

Dr. Jacobson received the award last summer at the association's annual meeting.

The Morrison Award is considered the ultimate recognition for association members. It is given in recognition of outstanding recent accomplishments in the field of animal science.

Dr. Jacobson is a professor in animal science at ISU. He has previously been recognized by the American Dairy Science Association as a recipient of the American Feed Manufacturer's award for research in nutrition in 1955, and the Bordon Award in 1960.

If those awards alone don't convince you that Dr. Jacobson is not a stranger to receiving outstanding awards, he also was named a Fellow in the American Association for the Advancement of Science in 1957. The Iowa chapter of Gamma Sigma Delta's Award went to him in 1970 .

"I'm very honored and proud to be presented with the Morrison Award," Dr. Jacobson commented.

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● Just a few of the Iowa State grads or former students on the DeKalb team: front row, from left: Dr. E. E. Schnetzler, Poultry Research Director; Harold Nolin, Vice-President, Seed Operations; Jack Nelson, Vice-President, Poultry; and Tom Roberts, Jr., President. Back row, from left: Dr. Dewey Harris, Poultry Biometrician; Elmer Monson, Manager, Seed Market Planning; Dave Mezger, Advertising; Chuck Lindhart, Manager, Product Planning; Paul Vance, Seed Production Manager, and Bob Higdon, Computer Programmer.

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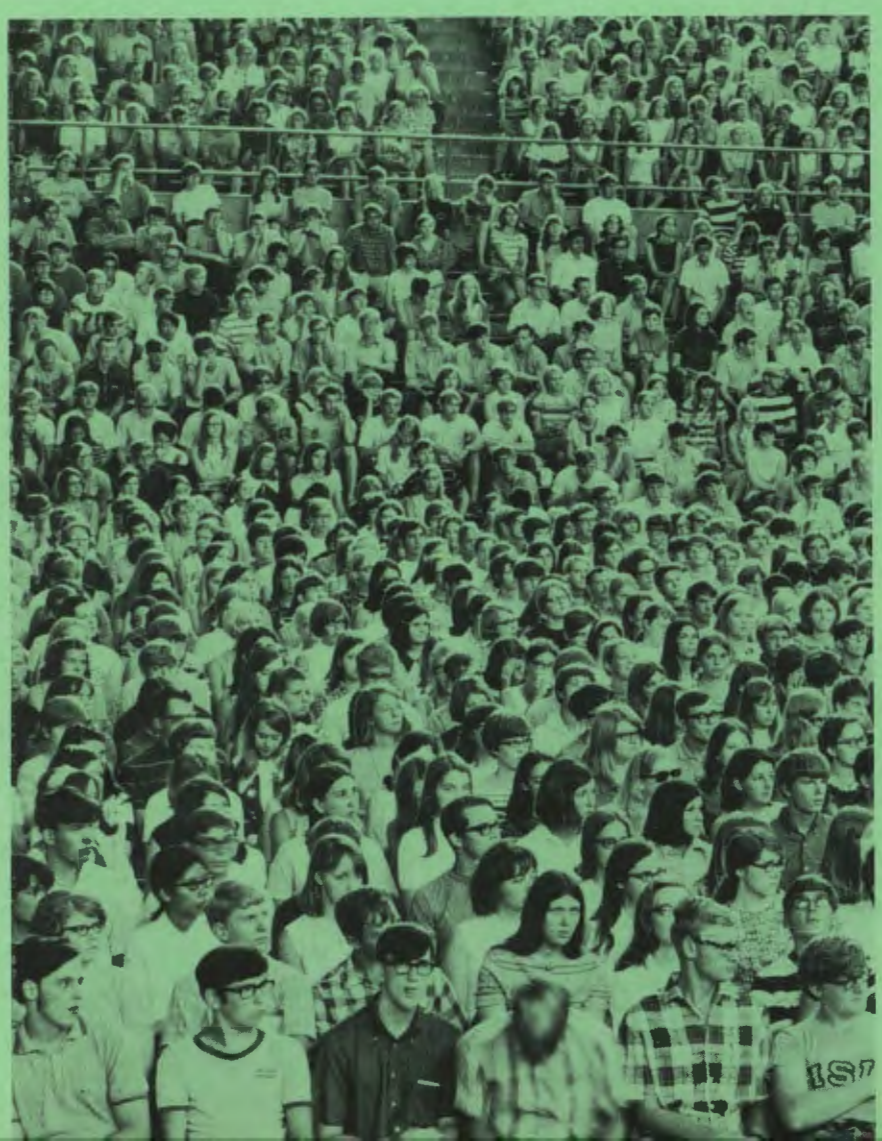
Ag. Production versus Over Population

by Chris Franson



Perhaps the most urgent problem facing mankind is the rapid growth of the human population. Pollution, crime, war, psychological disorders and other ills of our society may often be looked upon as merely symptoms of the population growth. These beliefs are shared by prominent ecologists who think man himself has become an endangered species as a result of his expanding population and its impact on the environment. The command to multiply and subdue the earth is turning life into a nightmare of overcrowding and starvation for much of the world's human population.

Agriculture has a great responsibility in this crisis since it is simultaneously one of the factors which has contributed to the problem and, if properly used in a long range plan, one of the solutions.

Agriculture's role in the population crisis dates back to modern man's early history. Before man started raising his own food approximately 10,000 years ago, his survival depended on hunting and gathering from his natural surroundings. Ecologists would say that he was living within the carrying capacity of his habitat, meaning the human population on a given area of land was determined by the amount of food naturally produced.

With the advent of agriculture, however, more people could live in a given area than had been possible before. This, along with medicine and a growing technology, removed the stops on the human population and allowed it to grow at a tremendous rate.

One of the most easily understood expressions of the world population growth rate is doubling time—the amount of time necessary for the population to double. Estimates indicate that there were about 5 million people in the world by 6,000

to give the current world population a minimally sound diet would require immediate doubling of food production

B.C., having taken 1 million years to double from 2½ million. The population than doubled roughly once every 1,000 years until reaching 500 million in 1650. By 1850 the world population reached 1 billion, a doubling time of only 200 years. In 1930 there were 2 billion people on the earth, the population having doubled in only 80 years.

At the present time our world population is approximately 3.5 billion and is doubling at the rate of once every 37 years. This represents a drastic reduction of doubling times; from 1,000,000 years to 1,000 years, 200 years, 80 years, and finally 37 years. At the present rate of growth approximately 70 million people are added to the world every year, the equivalent to adding a new nation the size of the United States to the world every three years.

One Stanford University biologist estimates that at our present growth rate it would take 250 years to populate all the planets of the solar system to a density equal to that of the earth if it were possible to transport from the earth the increase of nearly 200,000 people per day.

This rapid increase in numbers of people puts tremendous pressure on food supplies as well as other renewable and depletable resources. According to Dr. Paul Ehrlich, at least one-third of the world's population experiences extreme shortages of food. Three to four million people, mostly children, die every year from starvation. The Population Reference Bureau has stated that to give the current world population a minimally sound diet would require immediate doubling of food production.

Will modern agriculture be able to increase and sustain production to meet the needs of our growing population? Since the world population is increasing at the rate of 2% every year and agricultural production is increasing by only 1% annually, there is little reason for optimism. Although part of the problem is distribution, there is also a genuine lag in production in the underdeveloped countries where the food is needed most.

The problem in the underdeveloped countries is in part a cultural and education one. William Paddock, an Iowa State agronomy graduate, believes that if these countries are to be adequately fed the increase must come from within the countries themselves, since the major grain exporters of Canada, the United States, Austrailia and Argentina cannot possibly ship enough food to sustain them as their populations expand. However, many of these cultures are not prepared for modern agriculture, and education and the implementation of modern techniques are taking too much time. Any gains that are made may be wiped out by the next day's increase in population. In their book "Famine 1975" William Paddock and his brother have estimated when the grain-supplying nations will no longer be able to fill the food gap.

A more conservative estimate comes from the Department of Agriculture. According to USDA's Economic Research Service, the United States can continue to prevent starvation until 1984, after which the food needs in the hungry countries will exceed our capacity to aid them. According to Lester Brown, Senior Fellow of the Overseas Development Council and one time head of the USDA's International Agricultural Development Service, the so-called Green Revolution could possibly give us an extra 15 years, but is by no means a solution to the problem.

Even if it were possible to implement progressive agricultural techniques immediately all over the world, other problems would soon be encountered as the population continued to grow. First, production would ultimately be limited by the amount of arable land available. According to the National Academy of Science, approximately one-fourth of the world's 32 billion acres are arable or potentially arable. About one-third of the potentially arable land is located in the humid tropics, and much of it is leached of necessary nutrients, such as phosphates, sulfates and nitrates. For most countries in these regions the cost of introducing these nutrients on a large scale would be prohibitive.

Other areas of the tropics have lateric soils that harden when exposed. If the vegetation were removed from these areas with the intent of farming, the soil would soon turn to rock.

Irrigation of desert areas is not an encouraging prospect for increasing food production, mainly due to cost and technological handicaps. Irrigation to any significant scale would rely on desalting sea water, since fresh water is in short supply. According to figures from the Department of the Interior, the largest conventional distillation plant produces fresh water at the rate of 2.6 million gallons per day at a cost of 85 cents per 1,000 gallons. In 1967 authorization was given for construction of an atomic powered distillation plant with a capacity of 150 million gallons per day at a cost of 22 cents per 1,000 gallons. Even this cost is more than many areas can afford, and the capacity is enough to serve only one city the size of San Francisco.

Even if it were possible to desalt enough water our technology has not yet developed a system to economically transport large quantities of water across long distances and changing elevations. Also, the ecological implications of more and more atomic power plants releasing small amounts of radioactivity, and the possibility of a major catastrophe resulting from the use of the peaceful atom, are points to be reckoned with.

Intensifying farming practices on land presently in use would increase production somewhat, but the ecological consequences of such action make it questionable. Vast quantities of farmland are already lost every year to soil erosion, and more intensive agriculture could add to the loss.

Increased application of pesticides and herbicides appears not to be in our best interest, since such action may result in greater contamination of our environment.

Even if it were possible to increase production measurably by some new breakthrough in agricultural research, would there be logic in attempting to feed an ever growing number of mouths?

According to Lester Brown in his book "Seeds of Change," the new seeds of the famed Green Revolution are adding much to the production of food in many countries, but they are only buying time to search for a breakthrough in contraception comparable to the breakthrough in agricultural research.

It may be that feeding the fire of population growth by attempting to increase agricultural production to meet the demand is leading us to a dead end. We may fall deeper and deeper into an abyss from which there is no escape except population control. We cannot expect to allow our population to grow infinitely on a planet with finite resources. We will, if we haven't already, exceed the carrying capacity of the earth.

Perhaps the time has come to determine an optimum population which the earth can sustain and work toward this goal by limiting population growth. We use this type of reasoning constantly in our daily lives. We limit our budget according to our monetary resources, and we allot our time between various activities according to the total amount of time available. Shouldn't we attempt to limit our population so that we may live within the resource budget of the earth?

One such estimate of optimum population, based on USDA figures, says that the present rate of agricultural production will support 1.2 billion people at the American standard of caloric intake. Considering the millions of malnourished people today and the limited possibilities for increasing production enough to feed them, perhaps we should take steps to stabilize our population and possibly allow the birth rate to drop below maintenance level.

Since there is the possibility that population escalation may result in the end of human life, it appears that we need to re-evaluate the role of agriculture in the present crisis. It is true that great production is needed at the present moment, but it must be accompanied by a worldwide effort at limiting population growth. We must keep in mind that increases in production alone only result in the need for more and more production, something that may ultimately lead the human race to oblivion.

To keep up with the tremendous increase in population agriculture is forced to make use of a wide variety of technical advances, including bigger machinery. It is doubtful, however, if agriculture will be able to meet future food needs.

The Campus Car Crisis

Last year the Iowa State Traffic Committee issued 6,300 parking permits to faculty and commuters. Unfortunately, the campus streets just aren't prepared to handle that volume of traffic daily. The result of this campus car crisis has caused numerous scenes like this—too many cars at the same place at one time. Traffic congestion and irate drivers have led many people to consider possible changes in the campus traffic pattern. Traffic directors and stop lights are only temporary solutions to the problem. Eventually, other alternatives now being studied may need to be used.

Right now, the problem is that cars, bicycles and pedestrians are meeting at intersections at the same time. There is a continual hassle over who has right-of-way. Car drivers feel the bicycles and pedestrians should move out of their way; pedestrians assume the bicycles and cars will stop for them; and the bicycles also expect others to watch out for them. The result—mass confusion.

The 7,700 cars on campus last year (including residence halls) fought for 5,253 parking stalls. Every year the University has added parking space, only to be met by a rising number of cars on campus. One proposal to help solve the parking problem is a fringe parking lot at the ISU Center with bus transportation to campus. Financial problems and lack of support jeopardize this proposal's future.

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Another proposal to help the campus car crisis is the establishment of bicycle paths on campus and throughout the city. Bicycles provide good exercise as well as providing an alternative to the automobile, the nation's largest air polluter. However, cold and icy weather might make even the most avid cycler resort to the comfort of an automobile.

For the present, the bicycle rider is going to have to dodge traffic. Some factors working against bicycle paths are the cost and the old problem of right-of-way at intersections.

Is there any immediate solution to the campus car crisis? There have been many suggestions and proposals, but to date none have been of the type that is agreeable to all and none have avoided many serious complications. Whether an all-bicycle campus, a walking campus, a bus system or something else is implemented remains to be seen. The success of that system also will be questionable until it has had time to be evaluated over a period of time. But something has to be done—and soon.

Editorial

And Then Came Progress

Progress is our most important product. For many years a large manufacturing firm used this slogan. And in the years following World War II, it was a fitting slogan for progress was America's most important product. Ideas that fell under the label of progress were readily adopted. Little attention was given to the side effects of progress.

It is now 1970 and the by-products of progress have reached epidemic proportions.

Evidence that man is smothering in the wastes of progress is easily available. A short look around verifies this fact.

A few years ago an international group of engineers laid plans for the Aswan Dam to bring progress to the Nile River Valley. Russia and the United States competed for the privilege of building this dam for Egypt. Enthusiasts proclaimed that the dam would soon be known as the eighth wonder of the world. What has been the result of this progress?

The Aswan Dam has slowed down the Nile. Six hundred miles down river, sandbars have stopped building up on the delta. The Mediterranean is flooding the delta and one million fertile acres have disappeared under salt water.

Below the dam snails have begun carrying the blood flukes of schistosomicosis and thousands of men, women and children are going to die of this disease.

In addition, the Nile no longer carries nutrient rich sediments and the fish are disappearing. Fishing families are moving into the slums of Cairo and Alexandria. Another source of food has been lost.

Stories similar to this are repeated throughout the world. A few years ago the World Health Organization (WHO) decided to bring progress to Borneo through an anti-malaria campaign. The

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villagers' thatched huts were sprayed with DDT. Cockroaches absorbed this DDT and it became heavily concentrated in lizards which lived on cockroaches. The lizards were eaten up by cats, who promptly died from a DDT overdose. The villages were then overrun by rats carrying fleas and parasites which spread silvatic plague. Cats had to be flown in to save the villagers from an epidemic. The DDT also killed the predators of caterpillars that lived on the thatched huts. The caterpillars then multiplied and destroyed thatched huts.

Another DDT story comes from Peru. Peru's economy is dependent on cotton, tobacco, guano fertilizer from the cormorant bird and the fish-meal industry from achovies. A few years ago the cotton growers began using DDT on the pink bole worm to increase their yields. The pink bole worms and other insects became resistant and came back in stronger waves until 50 applications yearly were applied. The DDT killed the soil bacteria and ruined the soil. Cotton production dropped off sharply.

DDT run-off into rivers contaminated the fish, which killed many of the cormorant birds that produced guano fertilizer. Guano is the only fertilizer which seems to work on Peru's harsh mountain soil. Half of the people in Peru depend on food production from this soil for survival. With the diminishing supply of guano these people are going to have to look elsewhere for a food supply.

The DDT run-off, further down the food chain, also killed many of the anchovies, thereby destroying another portion of Peru's economy.

The spread of progress is very evident in this country. In the name of progress we have lulled ourselves into thinking that air and water pollution are acceptable.

The result—Lake Erie is biologically dead. One ton of crud per minute flows into this lake carrying slaughterhouse wastes, oil sludge, chemical junk and human sewage. Fishing and recreational activities along the lake are now almost unheard of. The lake has aged a million years in the last fifty.

On the banks of the Mississippi below St. Louis, there are signs warning picnickers not to eat lunch on or near the river bank. The spray from the river contains typhoid, colitis, hepatitis, diarrhea, anthrax, tuberculosis, polio and salmonella. A fish placed in a container of this river water will die in 60 seconds. In short, that part of the river is an open sewer.

The Cayuhoga River in New York is so loaded with wastes it has been declared a fire hazard. The last time it caught fire it burned two bridges.

This is not an isolated incident. Our waterways are rapidly becoming floating cesspools. Still industry is allowed to dump sewage into our waterways. Communities are slow to adopt acceptable sewage treatment facilities.

The biggest problem, however, is the air. Our oxygen supply mainly comes from two sources—plankton and other green plants. Much plankton has already died because of DDT damage.

The other oxygen source-green plants—isn't in much better shape. We have destroyed 93% of our In our rush to aid progress by paying everything with concrete we are losing one million acres of greenery a year.

In addition, we are throwing a wide variety of other pollutants into the air. Industry is allowed to throw masses of residue into the air so the surrounding community can progress. We buy bigger cars without thinking of the side effects. We want the bigger engine that represents progress over last years model.

Our unlimited thirst for progress is going to end soon. There are two possibilities for bringing about this end. Either man will begin to consider ecological benefits, as well as monetary benefits, before starting new projects. Or he will drown in his own wastes.

The decision is ours.

"The earth is drooping, withering . . . and the sky wanes with the earth, for earth has been polluted by the dwellers on its face. Therefore a curse is crushing the earth, alighting on its guilty folk; mortals are dying off, till few are left."

Isaiah 24:4-6

The Chicago Board of Trade

Wheeling and Dealing In Commodities

by Dennis Niles

Editors note: This story recently appeared in the Davenport Times-Democrat. The author is a 1970 graduate of Iowa State.

From the tiers that descend into the octagonal commodity "pits" tan-jacketed traders shout, whistle and use hand signals to negotiate the sale and purchase of commodities on the floor of the Chicago Board of Trade.

Every Monday through Friday, anxious buyers push and shout their way in and out of contracts that can often be measured in terms of tens of thousands of dollars.

Sales and selling prices are relayed instantly by an electronic system called "Com-quote" to brokerage offices and firms throughout the country. At the same time, similar transactions with different commodities are being traded only a few feet away.

To a visitor viewing the action from an observation post high above the huge floor, the orderliness of the commodity buyers and the markets seems questionable.

However, because of the "wheeling and dealing" that occurs, grain and other commodities are given instant prices that reflect factors of supply and demand.

The traders do not actually buy and sell commodities. Rather, they buy and sell contracts at prices calculated for the future.

In trading at commodity exchanges, unlike stock exchanges,

(turn to next page)

the action is more rapid with more pressure to trade. There is also more physical action by the traders who deal face to face in the "pits" for corn, wheat and other commodities.

Farmers and grain owners also use commodity marketing to minimize financial loss due to changes in commodity prices. This procedure is called hedging.

Hedging is a form of protection for the farmer to minimize risk. A good knowledge of current market and commodity situations is necessary for a successful hedging operation. Actually, most hedgers are seeking a profit from the transaction.

Commodities being traded for future delivery at the Chicago Board of Trade, which may be hedged, include: wheat, corn, oats, rye, soybeans, soybean oil and meal, steers and broilers.

Since people are accustomed to "cash markets," it is sometimes difficult to conceive a market for "now" and one for the "future," both dealing in the same commodity.

"Although the two markets deal in the same commodity, they are separate markets," said a Board of Trade official. "This availability of the two markets makes hedging possible."

Farmers or grain holders with commodities to sell should determine a price objective before dealing in the futures market. By determining a price objective, the farmer and broker will be able to plan how to use the market with a definite goal in mind.

The price objective may be determined by adjusting the futures price to the local cash equivalent in an area. This localizing precedure is done by taking storage costs, carrying costs and transportation costs into account, and results in the net price to be received by the producer.

After the price objective is determined, the farmer is required to deposit a sum of money based on his margin with the commodity broker.

"We call this type of margin deposit 'good faith money' and it is required by all futures traders," said Darell Richolson, commodity specialist for Merrill Lynch, Pierce, Fenner and Smith of Davenport.

"This margin money is probably why many farmers sell directly to elevators rather than hedge their commodity," Richolson said.

However, in a perfect hedge, the farmer would sell at a local elevator after he was able to choose a favorable market situation.

It should be kept in mind that hedging is a two-way situation. Protection against a price decline is obtained by forfeiting the opportunity for a speculative profit if prices should happen to rise.

If prices should rise, the higher price a farmer receives for his crop locally will be offset by a futures market loss.

The decision to sell or not to sell, or use the futures market, becomes a management decision.

According to Richolson, the farmer locally does not use the markets as much as he should. Elevators, manufacturers and processors use the market to insure themselves with a steady flow of raw materials at a stable price.

Action on the floor of the Chicago Board of Trade is fast with brokers keeping their eye on the boards and their ears tuned to the transaction of commodities around them. Traders are kept busy running to different "pits" as the market situation indicates.

Not That Kind of Guy

by C. Arthur Reisinger

"How many tickets do you want, sir?"

"Well, what's the age limit?"

"Children under six are free, six to eleven pay 50¢, and twelve and above pay $1.50."

"I'll take four adults and three children, then."

"Okay, that'll be $7.50. Out of $10, that's $7.50, $8, $9, and $10. Thanks, and enjoy the fair."

"Thank-you, we will," the man said and then turned and walked with his family to the gate.

"You blew it again," Mark said from the booth near me. Mark was the leader-type and I was his follower. He got me put at his gate just because he really liked me. He was a tough type and really thought of no one but himself mostly, but as I said, he did take me on at his gate. "The perfect opportunity to make a quick buck and you let it slip right by you," he added. "I wish he would've come to my window."

"I'm sorry," I tried to apologize. "I'm just not awake enough this early in the morning. I'd probably goof up."

"Nonsense," he assured me, "you won't. Look, now's the perfect time to trick these people out of their money. They've just gotten up, and don't know what's going on yet. Look, do you want me to go through the procedures again?"

"No, that's okay. I'll go over them in my own mind," I said.

"Okay, but you run into any snags, just ask me. I know them all quite well."

"Yeah, okay . . . . thanks." Darn it, I thought to myself. Why did I have to mess that deal up. If I'd just given the guy three adult tickets and four childrens' tickets, instead of vice versa, I'd have a buck for myself, and I would've made Mark happy. The guy who bought the tickets wouldn't have looked at the tickets, and the ticket taker at the gate wouldn't have known the difference. I've just got to build up some guts, I guess. I won't get caught. And even if I do, I can say I made a mistake and they'll have to take my word.

Here it's already the third day of the Iowa State Fair, and I've only pocketed ten bucks so far. With the perfect gate, too. All the dumb farmers stay up at the campgrounds through the entirety of the fair, and so pass through here every day. Heck, Mark's already got 35. But then, he's good at this and I'm just a beginner. Last year he was also on this campground gate, and he made $75 then. This is only my first year at selling admission tickets, though, so I can't expect too much.

Business hadn't as yet picked up, as it was only 8:00 in the morning, so I used this time for thinking through the ways to cheat the fair-goers and the fair, which Mark had told me how to do. Let's see, there's the . . . a . . . "Would you run through those ways again for me, Mark?"

"Sure," he answered, "that's what I'm here for. Okay, the first and the easiest way is to cheat the fair. When someone, who looks like he's about twelve years old, buys an adult ticket for $1.50, give him a children's ticket, which is worth 50¢. Kids don't ever look at their tickets, so they don't know the difference, and the guys at the gate just figure that the kid is under twelve years of age, when he presents the childrens' ticket. Cheating the fair is also easy when tickets are bought for larger groups. The guy buys a bunch of tickets at the right price, but you give him less of the adult tickets and more of the childrens' tickets. Those guys at the gate aren't too good at predicting ages and so let anyone and everyone through, just as long as they have a ticket. I'll tell you more later," he said. "Here come some people."

Just couples came to my window, so I didn't get a chance to try anything out. I saw a large family come to Marks' window, though, and thought he'd probably make a profit off them. No sooner had business come, then it went away.

Mark pulled out his billfold and stuffed a dollar bill into it. "That's another way you can make money," he said. "Short-change the customer as I did with him. He had such a dumb look on his face, I couldn't help but trick him. He wanted two adults and five childrens' tickets, and I said that would be $6.50. He paid that extra buck, without a bit of hesitation, and walked away happy. Here are some more hints. Be slow with your figuring,

and then if you do get caught, just laugh about it and say, "Yeah, that's right," and then give him the right amount. Also, when giving the price of tickets, just give the total price of the tickets, like $7.50 or $5.00. Don't go through the tickets one by one and add them up for the customer, or you'll never make anything. And one last thing, when they've change coming, be slow about giving it. Lots of times they're in a hurry and forget about their change. You just remember those things and you'll come through fine."

"Gee thanks," I shot back. I'll remember and practice those things today." It was now nine o'clock and business was sure to pick up within a few minutes. It was about a ten minute walk between the campgrounds and the fairgrounds' gate and so the fair employed eight tractor pulled shuttles to get the people between there and here. Most of the campers waited for the shuttles to start running, instead of walking, and they were to start at nine o'clock. They were free to ride and so people made much use of them.

"Get ready," warned Mark, "here come our pigeons."

"Don't worry, I'm ready," I said, and then checked to see that I was. It was best to keep the ones, the fives, the tens, and the twenties divided into separate piles and to have the change stacked in 50¢ piles, and so I checked to make sure mine was divided in this way. If you didn't have your money set up this way, you'd end up gyping yourself instead of your customers.

"Two adults," the yell came in through my window.

"That'll be three bucks, sir."

"Three?"

"Yep, they raised the prices this year."

"Okay, here."

"And here's your two tickets, sir. Thank-you."

"Three adults and one child," the next in line said.

"That'll be five dollars, sir."

On and on the people kept approaching the window one by one. The line grew short, but would not come to an end for another tractors' smokestack made its appearance at the top of the hill.

"How many?" I asked.

"Four adults and three children."

The perfect chance, I told myself, as I scanned this family. Four in the family could easily slip by as being under twelve years of age, so I would give them three adults and four childrens' tickets. The ticket prices were printed in small print on the tickets, and so without making a real close examination of the ticket, he wouldn't know the difference. He would still be getting four of one color and three of the other color, only he'd be getting the wrong number of each color.

"That'll be $7.50," I said.

He slipped the money into me and I slipped his tickets out. He picked them up and, without even a glance at them, walked toward the gate. I watched the gate out of the corner of my eye, as I waited on the next in line. I was afraid the ticket-taker might catch my attempt, but he simply took the tickets and let the man and his family through. What's so hard about that, I asked myself. Everything went perfect and I made a quick buck. You can't beat that, I told myself. Mark's right, this is easy.

During the next two hours, I increased my haul by five more dollars. Another couple of hours and I'd reach the ten dollar goal I had set for the day. It was now eleven o'clock and business started to slack off. The shuttle were only half-filed with people now, and most of those on these shuttles had already been through the gate earlier and and so had stamps on their hands, which allowed them to get back in free. Business wouldn't pick up again until around one o'clock, when people would start coming in for the two o'clock auto races.

"It's working," I said to Mark.

"What?" he questioned, looking up from some money he was counting.

"I said, it's working. You know, cheating the people."

"Of course," he said. "These farmers are too dumb to catch on to a couple of smart ones like we are. Why, how much have you made?"

"Six bucks," I said with a grin.

"Hmm, not bad, I've only gotten twelve myself. It must be a good day for it. Remember though, don't push it. You push it and you're liable to end up getting caught."

"Don't worry, I won't push it." Not much, I thought to myself. Only enough to catch up to Mark. I'm going to show him I'm just as good as he is, and maybe better.

"I'm going to lunch now," Mark said. "Things won't get busy again until around one o'clock and I'm getting hungry. I'll be back at noon, and then you can take an hour."

"Okay, that's fine with me."

He gathered up his money and tickets and locked them in the metal box which was for that purpose. Then he went out the door and headed for the gate.

"See you in an hour," I yelled at him. He acknowledged my good-bye with a wave of his hand, and then jogged down the hill and onto the fairgrounds.

I was happy to see him leave, for now I'd have a chance to catch up to his twelve bucks. We only worked until two in the afternoon and so that left me less than two hours.

The next tractor came and went with no one buying a ticket. But then, three boys came running down the hill and to my booth.

"How much?" one of them asked.

"How old are you?"

"Twelve."

"That'll be $1.50 then."

He dug down into his pocket, pulled out the money, and handed it to me.

"Thanks," I said, and then handed him a childrens' ticket.

The next two boys were also twelve, so I let

them also each pay $1.50 for a childrens' ticket. I laughed to myself as they walked toward the gate. Why shouldn't I, though, for I'd just made three quick bucks. When they reached the gate, the ticket-taker, instead of taking their tickets, pointed at my booth and they started back in my direction. I was shocked. Now what would I do? He must've caught me. Oh well, I'll have to just stay calm and act as if I'd made a mistake. They reached my booth and one boy spoke.

"He says you gave us the wrong tickets."

"Wrong tickets?" I questioned. "Let's see them." I took the tickets and looked at them. "By Gawd, I did," I blurted out in surprise. "Gee, I'm sorry." I quickly gave them the right ones and they returned to the gate. This time they got through.

Darn it. Why'd he have to catch that. Three bucks down the drain just like that. Now, I'd never catch Mark. The next shuttle resulted in a couple of sales, but no profit for me. It was nearing the time Mark would be coming back, also. I had to do something.

My next customer bought one adult ticket. All he had was a twenty, so I had to change it for him. Another chance, I thought to myself. He gave me the twenty and I counted out his change. "That's $1.50 for the ticket, two, three, four, five, no, that was a $5 bill, so that'd be ten, and ten makes it twenty. Right?"

"I guess so," he said as he took the money and started to walk away. "Hold it," he exclaimed. He came back to my window and explained the error, and I could do nothing but give him his dollar back and say I was sorry.

I'd about had it with trying things for the day. Luckily I'd escaped being caught, so far, by saying I had made a simple mistake. Maybe I wouldn't be so lucky the next time. I was sure glad Mark hadn't been around though, because he'd have just shook his head back and forth in response to my goofs. I knew that what he'd said about not trying it without a crowd around was what I should've followed, but I had wanted to catch up to him. The heck with it now though. I'd wait until after lunch, when things would be busier, and then I'd try it again.

Lines started to form again after lunch as they had in the morning. I knew some chances would come these long lines, and I'd be ready for them. No chances came though, and now business started to slack off.

When my line came to an end, I turned just in time to see a cop car pull up to our gate. This would've been okay, but he had a farmer with him, a guy I'd seen buy a ticket at our booth for the past five days. They climbed out of the cops' car and walked towards our booth.

"A cop's coming," I was frantic.

Mark quickly jerked his head around and spotted the two approaching. "Keep calm," he said. "It's probably nothing."

"Nothing?" I questioned. "I doubt that." I was starting to shake. I looked back again to the two who were getting nearer and spotted a mad look on the farmer's face. The cop had a cold look which also didn't help matters. We've had it, I thought to myself. I began to sweat. All for a measly six bucks, too. Oh heck!

"One adult and two childrens' tickets."

I swung my head back around and faced a woman customer. "Excuse me, what was that again?" I asked.

"One adult and two childrens tickets," she answered, sounding a bit perturbed.

"Yeah . . . a . . . that'll be $3.50 . . . no, I mean $2.50."

"Okay, here's a five," she said.

"Let's see, that's $2.50 for your tickets, $3.50, $4.50, and . . .

"He's the one," the farmer shouted.

"Five," I said as I jerked and dropped the 50¢ worth of change on the counter. She picked up the money and left. I couldn't turn around. One shaking hand grasped the other as I attempted to hold back my noticeable shaking. No customers were now left in my line, so I slowly turned my head toward Mark. He was calmly handling another customer and didn't appear to be shook in the least.

I thought of getting fired, or arrested, or maybe even something worse would happen. I thought of what my parents would say if they should find out. I was sure I was about to get canned. But why didn't they come to my window and get it over with.

Another customer came to my window and I gladly began to wait on her. Then I heard the voices of the farmer, of the one I guessed to be with the cop, and of Mark, talking. I was much relieved that it was not me they were after, but I was concerned for Mark. I got confused trying to listen to their conversation and still do my job, so I had to stop trying to hear. As I finished with my last customer, I turned to see the cop and the farmer walking back to the car. Mark was cussing under his breath.

"What did they say?" I slowly asked.

"Ah, the old goat was all riled up about me giving him change for a five, when he gave me a twenty. I convinced him it was just a simple mistake though, and the cop let it go with a warning to watch it closer in the future."

"You're going to quit then, huh?"

"Heck no, why should I? They can't pin anything on me. Everyone makes mistakes and I'm just an everyone. To them anyway, that is."

That was enough for me. I couldn't last through another ordeal like this last one. I've had it, I told myself. Those few measly bucks sure weren't worth all that worrying. And concerning Mark, I'd have to get out of here, away from him. If he was going to keep his practice up, I sure didn't want to stick around. When I got off work in the afternoon I'd tell the official I wanted a new ticket booth. I'm sorry I failed you Mark, I thought to myself, but I guess I'm just not that kind of guy. •

Vi

Fall and Vi Holst have one thing in common; they both help make Iowa State's campus one of the prettiest anywhere. Vi comes from a farm near Davenport and for the past year she has reigned as the Iowa Dairy Princess. Vi is a sophomore in Interior Design and a member of Delta Delta Delta sorority. She likes to sew and collect antiques in her spare time.

Over the brew

One of the first shocks facing freshmen at Iowa State is THE ROOMMATE. In an uncharacteristic burst of energy, the **Iowa Agriculturist** staff undertook an in-depth study of the phenomena known as THE ROOMMATE.

Roommates come in a variety of styles-all of them bad. Most are a combination of the worst attributes of a nauseating little brother and the kid you hated in high school.

The following is a preliminary synopsis of the species of roommates that have been classified, listed according to undesireability.

THE ENGINEER—This species can usually be identified by the slide rule strapped to his belt and the white-sox-style clothing. The farthest extent of his social-political interest is the new parking regulations. THE ENGINEER roommate will usually talk about things like his last date (three years ago), a big bridge he saw at the age of six or the varying methods of attaching a clip on plug to an electric socket. If you find THE ENGINEER for your roommate it is best to treat him with compassion. Maybe he is being punished for the wrong doing of his forefathers.

THE GREASER—also known in some localities as "THE NO-SHOWER KID". His most outstanding feature is his smell. He is also identified by the tiny droplets of grease trickling off his pimples. THE GREASER is living proof that ban does wear off as the month wears on. If you discover yourself living with THE GREASER, we strongly urge you to keep your gas mask on at all times.

THE JOCK—This species is NOT identified by his large vocabulary, sophisticated conversation or any study habits. He has the amazing ability to stay eligible without ever going to class. Most are a combination of Charles Atlas' body and Goldie Hawn's mind. His conversation topics range from the winning pressure-packed free throw he made in third grade to the touchdown pass he made in fourth grade. Should THE JOCK get out of line, the best way to control this pest is by threatening to dye his underwear pink.

THE BOOKER—also known as "THE GUNNER." This guy could really be a bad influence. He could ruin all your good habits of goofing off that took years to acquire. If the booker is your roommate, your only hope is that he spends his time in the library. Otherwise you will have to endure the irritating grinding of lead against paper or the furious flip of pages as you attempt to watch your favorite TV show, drink beer or look at the pictures in Playboy. The biggest disruption to THE BOOKER'S life came last year when the library began closing early on Saturday night.

THE NON-BOOKER—This variety includes (according to our data) 15.2% of all sophomores, 73.7% of all juniors and all of the seniors. This species can be easily identified by squinty eyes from many hours of intensive tube viewing. In advanced stages of developement THE NON-BOOKER arranges his schedule to have no classes before noon, after three or on Friday or Monday. Actually his class schedule makes little difference, he doesn't go anyway and he thinks the library is a bar in Des Moines.

Behind the Shed

An Iowa State engineer went in to apply for his first job. After studying his credentials the interviewer said, "I think we may have an opening for you—helping the janitor clean the rest rooms."

The engineer looked shocked and said, "But I've got an engineering degree from Iowa State."

"That's O.K., we can train you," the interviewer replied.

☆ ☆ ☆

"Hey, Fred. Do you know what they call someone who stirs cement with a pitch fork?"

"No. What?"

"A mortar forker."

At a dance a freshman girl was trying to make conversation with her partner. "I think dancing makes a girl's feet larger, don't you?"

"Yes."

Trying again, she bashfully asked: "Don't you think swimming gives a girl awfully big shoulders?"

After a long pause her partner finally stated, "You must ride quite a bit, too."

☆ ☆ ☆

Comment of a cannibal while eating, "This tastes like someone my mother used to make."

☆ ☆ ☆

Both Middlesex and Blue Balls, Pennsylvania have banned the show Beyond the Valley of the Dolls.

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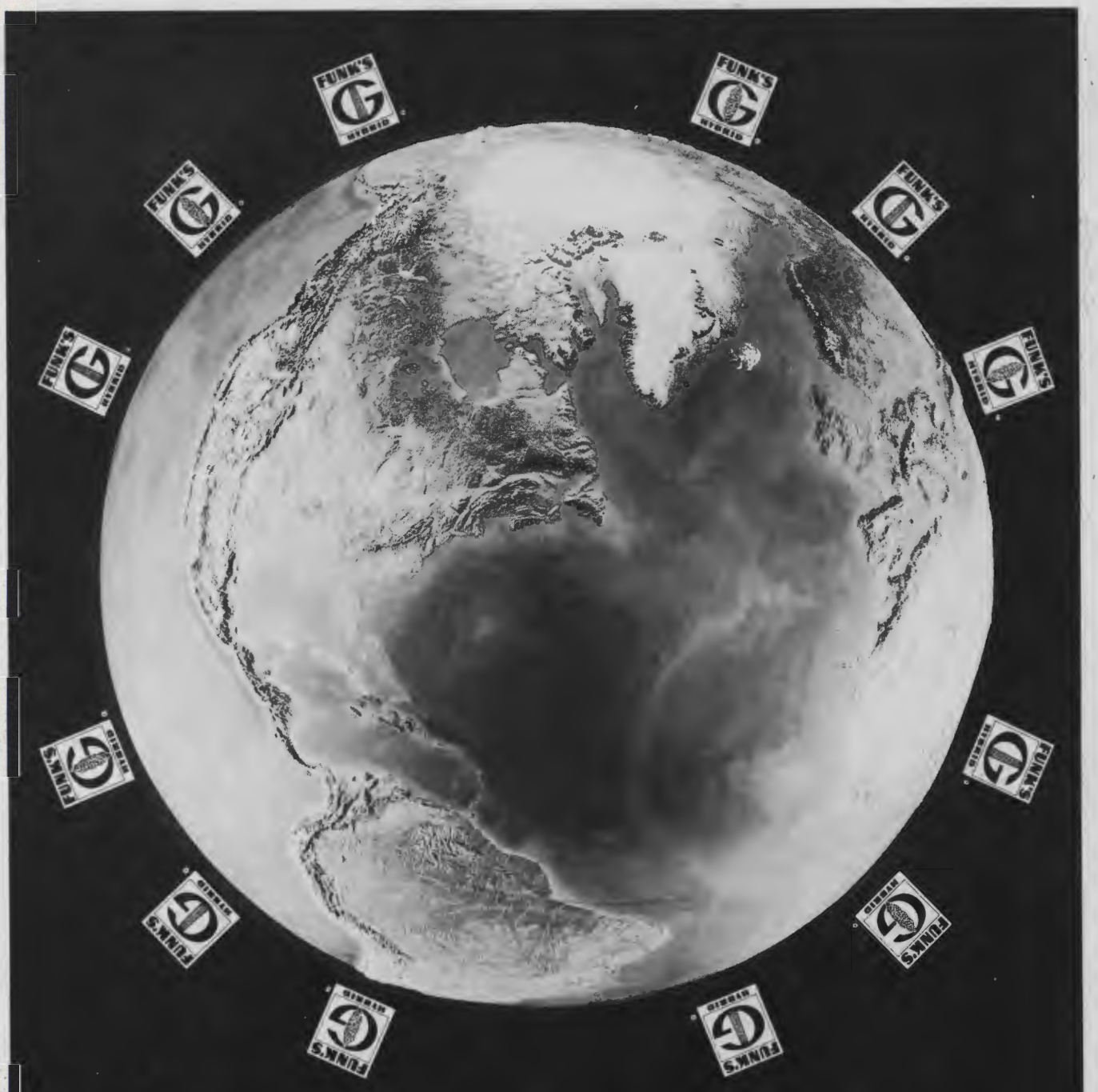
The Banks and Associations provide comprehensive and liberal employee benefits and a salary program which is continually reviewed and updated with the assistance of professional consultants.

FOR A CLOSER LOOK:

Write to the Personnel Officer, Farm Credit Banks of Omaha, Box 1229, Omaha, Nebraska 68101. He will arrange an interview for qualified applicants to discuss fully the challenging opportunities available in Farm Credit.

FARM CREDIT SERVICE



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